

**IN THE UNITED STATES DISTRICT COURT  
FOR THE WESTERN DISTRICT OF PENNSYLVANIA**

CNX GAS CORPORATION and CNX	)	
GAS COMPANY LLC,	)	
	)	
Plaintiffs	)	
	)	
v.	)	Civil Action No. 05-1574
	)	
CDX GAS, LLC,	)	
	)	
Defendant,	)	
	)	
v.	)	
	)	
CONSOL ENERGY, INC.,	)	
	)	
Counter-Defendant	)	

**REPORT AND RECOMMENDATION ON CROSS-MOTIONS  
FOR SUMMARY JUDGMENT**

Before the Special Master are numerous motions for summary judgment filed by plaintiffs, CNX Gas Corporation and CNX Gas Company LLC (the “CNX plaintiffs”), and counter-defendant Consol Energy, Inc., (plaintiffs and counter-defendant will be referred to collectively as “the Consol Entities”), and by defendant/patentee, CDX Gas Company LLC (“CDX”). After careful consideration of the voluminous summary judgment record and the legal arguments of the parties, the Special Master hereby issues the following Report and Recommendation to the United States District Court for the Western District of Pennsylvania.

## I. INTRODUCTION

Defendant CDX owns the six patents-in-suit,<sup>1</sup> all of which describe a “dual well” drainage system that claims to provide “an improved method and system for accessing subterranean deposits from the surface that substantially eliminates or reduces the disadvantages and problems associated with previous systems and methods.” ‘523 Patent, col. 2, lines 17-21. The original patent assigned to CDX on this subject matter, which is not one of the patents-in-suit, is U.S. Patent No. 6,280,000 (the “‘000 Patent”). The application for the ‘000 Patent, the “parent” patent to which all of the patents-in-suit claim priority, was filed on November 21, 1998.

CDX claims that the Consol Entities have infringed upon, and continue to infringe upon, each of the patents-in-suit by using systems and methods that employ CDX’s patented and proprietary technology. By letter dated October 25, 2005, CDX gave formal notice of the alleged infringements and demanded that the Consol Entities “refrain from any and all use of CDX’s patented and proprietary technology.” First Amended Complaint, ¶10. The CNX plaintiffs thereafter filed a Complaint in the United States District Court for the Western District of Pennsylvania in November 2005, seeking a declaratory judgment that the patents-in-suit are invalid and unenforceable and that the CNX plaintiffs and Consol have not infringed upon the patents-in-suit. CDX thereafter filed counterclaims for patent infringement against each of the Consol Entities.

After extensive discovery, the parties have filed cross-motions for summary judgment. The Consol Entities have filed summary judgment motions on the grounds that: (1) the asserted claims of the patents-in-suit are invalid and unenforceable under 35 U.S.C. §102(b) because: (a)

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<sup>1</sup> The patents-in-suit are: U.S. Patent No. 6,357,523 (the “‘523 Patent”), U.S. Patent No. 6,561,288 (the “‘288 Patent”), U.S. Patent No. 6,604,580 (the “‘580 Patent”), U.S. Patent No. 6,679,322 (the “‘322 Patent”), U.S. Patent No. 6,964,298 (the “‘298 Patent”) and U.S. Patent No. 6,976,533 (the “‘533 Patent”).

there was a prior public use of the invention more than one year before the effective filing date of the patents-in-suit; (b) the invention was “on sale” for more than one year prior to the effective filing date (the “critical date”)<sup>2</sup>; and (c) the invention was disclosed in a printed publication prior to the critical date; (2) the patents-in-suit are, as a matter of law, invalid as obvious pursuant to 35 U.S.C. §103 due to the “extensive prior art,” and the fact that the combination of known elements was obvious to try; (3) the patents-in-suit are unenforceable as a matter of law due to the alleged inequitable conduct of CDX, its inventor, and/or its patent attorney during the prosecution of the patents-in-suit; and (4) certain of the accused well systems drilled by the Consol Entities do not infringe upon any asserted claims of the patents-in-suit.

Conversely, CDX seeks summary judgment contending that: (1) the patents-in-suit are valid and enforceable; (2) the Consol Entities have infringed the asserted claims of each of the patents-in-suit, (3) such infringement was willful with respect to the ‘523 Patent, ‘288 Patent, ‘580 Patent and ‘322 Patent; and (4) CDX is entitled to recover its lost profits, as its measure of damages.

For the reasons that follow, we find that genuine issues of material fact preclude summary judgment in favor of either party because we cannot determine, as a matter of law and from the record before us, whether the patents-in-suit are valid and enforceable. Disputed issues of fact preclude a definitive ruling on whether the “prior public use,” “on sale,” and “prior printed publication” bars of §102(b) are applicable to invalidate the patents-in-suit. The evidence is also ambiguous as to whether the invention is invalid on the basis of “obviousness” under §103. Finally, we have considered the remaining issues raised by the parties on summary

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<sup>2</sup> The district court has already ruled, by Memorandum Opinion and Order of Court dated February 20, 2007, that the patents-in-suit relate back to the ‘000 Patent and, therefore, for purposes of summary judgment, the critical date for the patents-in-suit is November 20, 1997.

judgment and conclude that disputed factual issues preclude judgment as a matter of law on each of those issues as well.

## II. FACTUAL BACKGROUND

### A. The Drilling of Well DW-1

In 1997, U.S. Steel Mining Company (“USM”) began drilling a series of dual well (“DW”) systems at the Pinnacle Mine located in Wyoming County, West Virginia. Joseph Zupanick, the Senior Engineer for USM and the inventor of the claimed invention, was placed in charge of the dual well project for USM. Zupanick testified that his job as Senior Engineer at USM was “to remove gas from the coal mine.”

Because USM was not itself in the business of drilling wells, it hired an experienced directional drilling company, Wilson Downhole Services, to drill the initial dual well system, designated DW-1, based upon detailed diagrams provided by USM.<sup>3</sup> DW-1 was drilled as an “experiment” to determine whether Zupanick’s proposed dual well system would work for its intended purpose; i.e, the removal of methane gas from the coal seams. Zupanick prepared notes in connection with the drilling of DW-1, and wrote that the “goal” of DW-1 was to

Demonstrate the feasibility of conducting methane pre-drainage activities from the surface using articulated drilling. Demonstrate a method to reliably de-water the horizontal well bore. Drill under balanced.

The drilling of DW-1 began on May 1, 1997 and was completed approximately three weeks later. Thereafter, in a memorandum dated May 21, 1997 to Bob Hartlaub of USM, Zupanick wrote that he was “seeing some fairly good gas flows” from DW-1 and that he “view[ed] this first well as an experiment to prove the concept. I would like the next well to build on what we learned, and to demonstrate cost effectiveness.”

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<sup>3</sup> During the drilling of the first six wells at issue, USM also contracted with various other drilling companies and engineers to assist in the drilling process.

B. The Drilling of Wells DW-2 through DW-6

On or about June 9, 1997, USM began drilling well DW-2. Zupanick's written "goal" for this well was to:

Increase time spent drilling coal. Attempt to use analysis of return cuttings (mud logging) to make predictive assessments of when the bit is starting to leave the coal formation. Use rig with adequate weight on bit capabilities.

DW-2 was completed by July 6, 1997

The third well, DW-3, was started on or about August 31, 1997 and was completed by September 12, 1997. The written "goal" for this well was, among other things, to "[a]ttempt to duplicate the production seen in 8a No. 1 Hole [DW-1], while decreasing time (cost) of drilling."

USM began drilling the fourth well, DW-4, on or about September 3, 1997 and completed the well by September 10, 1997. The written "goal" for this well was, among other things, to "[r]educe the cost of drilling operation by reducing non-productive time. Look for further efficiencies in drilling operation."

USM drilled two more dual wells, DW-5 and DW-6, before the critical date. The drilling for DW-5 began on or about October 21, 1997 and was completed by November 2, 1997. The drilling for DW-6 started on November 3, 1997 and was completed by November 11, 1997. Although Zupanick made notes relating to the drilling of these wells, he did not expressly note a "goal" for either of the wells, as he had with respect to wells DW-1 through DW-4.

C. Evidence of Experimentation and the Use of Wells DW-1 through DW-6

Over the course of drilling wells DW-1 through DW-6, some aspects of the dual well system were changed or modified. Zupanick changed the horizontal distance between the articulated and vertical wells, changed the radius of curvature of the articulated well, and tried various ways to intersect the articulated well to the horizontal well when the drill bores initially

failed to intersect. The record is ambiguous, however, as to the extent of these changes, when they were made, and how often. The record is also silent as to whether the changes made to the wells occurred as a result of systematic testing of the invention or whether they were made for other reasons. For example, the Consol Entities contend that the changes in the horizontal distance between the articulated and vertical wells resulted, not from systematic testing, but from the differing topographies at the Pinnacle Mine.

Before drilling DW-1, USM had been using in-mine longhole drilling to degasify the “gateroads” of the coal seam at the Pinnacle Mine. After DW-1 was drilled, however, USM replaced in-mine longhole drilling with the dual well system, and the coal at the Pinnacle Mine was thereafter degassed using the dual wells. USM also mined some of the coal that was degassed by the dual wells prior to the critical date. In some instances, and before mining could take place, USM installed a compressor to create a vacuum to remove gas that remained in the coal seam. Indeed, the record establishes that in late August 1997, three months after the drilling of DW-1 was completed, USM began plans to mine the coal from the area degassed by DW-1. Before the mining began, however, Zupanick determined that DW-1 had not sufficiently degassed the coal and that a “scary” amount of gas remained in the coal. Therefore, Zupanick installed a vacuum to pull gas from the well and to keep it from flowing into the mine. When asked at his deposition about this issue, Zupanick testified as follows:

It looks like they were getting ready to mine into the – the area of the first well, the DW-1. And the first sentence says, gas production is still 160 MCF per day, which is pretty scary, I mean, that’s a bunch of gas. \* \* \* So, you know, this DW-1 had not done what it needed to do. It had not gotten all of the gas out of the mine.

Zupanick went on to explain that he had to install a compressor to ensure the safety of the mining operations. Compressors were also installed on wells DW-3, DW-4 and DW-6 to assist in the degasification process.<sup>4</sup>

During the drilling process, it appears that neither Zupanick nor USM imposed any express obligations of secrecy or confidentiality on the third party drilling contractors or other companies that were involved in the pre-critical date drilling activities, and a number of representatives from these contractors testified that they did not believe that they were under any such obligation. Indeed, one such representative, Duane Yost of Gene Yost Drilling, who provided horizontal drilling services to USM on wells DW-3 through DW-5, used the information he had learned about the invention in an attempt to drill a similar dual well system at another mine not owned or operated by USM. Although Zupanick and CDX contend that there were both express and implied duties of confidentiality imposed on all of the third party contractors, the record is, at best, ambiguous as to whether such duties existed.

D. Applications to Convert the Wells to “Coalbed Methane Wells”

In or around September or October 1997, Zupanick, as the “designated agent” for USM, filed applications with the West Virginia Office of Oil and Gas (the “OOG”) for permits to convert wells DW-4, DW-5 and DW-6 to coalbed methane wells.<sup>5</sup> The record does not establish why USM and Zupanick sought the permits for these wells at this time. Zupanick did, however, testify generally as to why a drilling company would seek a coalbed methane permit:

Q. When would I choose to get a permit under an IBR instead of obtaining a permit under – from the Office of Oil and Gas?

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<sup>4</sup> CDX argues that the use of the compressors establishes that the invention did not work for its intended purpose. In response, the Consol Entities contend that Zupanick always intended to use a vacuum to supplement the dual well system in degasifying the coal. The record is ambiguous on this issue.

<sup>5</sup> Zupanick testified that his job responsibilities included obtaining the necessary permits for the wells.

A. You would - - an IBR would – okay. Maybe this is the answer that you’re looking for or maybe this is concise. If you’re going to commercialize the gas for – if you’re going to have any gas sales, the well needs to have a West Virginia Department of Environmental Protection permit.

Q. And that’s the permit that you would obtain from the Office of Oil and Gas?

A. That’s correct.

Zupanick later testified that gas sales were not the “exclusive” reason that a drilling company would seek a coalbed methane permit, but he did not provide other reasons why a company might seek the permit. CDX has proffered the expert testimony of Michael W. Lewis to establish that such a permit may also be sought to “bring[] a well under regulatory control of the OOG to obtain perceived benefits under such control or to tie up acreage under the spacing requirements.” As stated, however, the reason that Zupanick and USM sought the permits prior to the critical date is not evident from the record. In any event, and in connection with the permit applications, Zupanick also sent legal notices to third parties who had an interest in the gas, stating that the wells were “necessary to advance the safety of USM’s coal mining operations.” On November 14, 1997, six days before the critical date, the OOG issued a coalbed methane well permit to USM for the DW-5 well.

E. Gas Sales from Wells DW-1 through DW-6

Prior to the critical date, none of the gas produced by wells DW-1 through DW-6 was sold; rather, the gas from each of the wells was vented to the atmosphere.<sup>6</sup> DW-6 was eventually hooked up to a pipeline and gas produced by that well was sold, but this occurred after the critical date. No gas was ever sold from wells DW-1 through DW-5. On January 14, 1998, after

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<sup>6</sup> Gas sales from these wells would have been physically impossible because of the absence of (i) a gas pipeline connected to the wells, and (ii) booster compression, both of which were required for gas sales.

the drilling of the first six wells was completed, Zupanick wrote another memo to Hartlaub stating that:

As you know, *while in the experimental phase of this project*, we drilled the last six wells using Wilson Downhole Services on a day rate cost structure.

*I feel that this process is now routine enough* that the P.O. can be, to some extent, performance based.

(emphasis supplied).

F. The Gas Lease and Development Agreement

On December 31, 1997, USM entered into a “Methane Gas Lease and Development Agreement with CDX. Pursuant to the Lease, CDX was granted the exclusive right to remove, produce and sell methane gas at the Pinnacle Mine, including the right to “use wells presently in existence on the Leased Premises and all wells drilled in the future by either Lessor or Lessee during the term of this Lease.” CDX was required to pay royalties to USM on the gas that was sold.

In accordance with the Lease, CDX took over the above ground coal degasification operations from USM at the Pinnacle Mine and began to drill additional “dual well” systems to degasify the mine ahead of USM’s mining operations. CDX drilled eighteen wells in 1998, sixteen wells in 1999 and thirteen wells in 2000. CDX sold the gas produced by these wells.

G. The Proceedings Before the Patent Office

On November 20, 1998, CDX and Zupanick, who had left USM to join CDX in April 1998, filed the initial patent application with the U.S. Patent and Trademark Office for the dual well system. Zupanick had never filed for a patent prior to this time, and he testified that he did not consider applying for a patent for his dual well concept until the Spring or Summer of 1998, after he had left USM and joined CDX. When the application was initially filed, Zupanick and

CDX failed to disclose the drilling activities that had taken place at the Pinnacle Mine during 1997. In fact, no disclosure of those activities was made until November 14, 2000, when CDX filed a “Declaration of Experimental Use” with the PTO (the “Declaration”). The evidence of record does not establish why CDX and Zupanick failed to disclose the 1997 drilling activities prior to filing the Declaration in late 2000.

The Declaration is comprised of a 3 page sworn declaration made by Zupanick, along with more than 300 pages of exhibits. Over 250 pages of the exhibits consisted of “Vertical Degas Daily Logs,” a daily chart kept by USM to record the daily gas production from the wells. As its title implies, the Declaration was intended to show that USM’s use of the invention prior to the critical date of November 20, 1997 was experimental. In the Declaration, Zupanick stated that drilling began in May of 1997 and that “various well configurations and methods of drilling the wells to support degasification of the coal seams were tried.” Zupanick also stated that he developed a drilling plan for each well, that he reviewed the results of each well after it was drilled, and that he compiled and maintained a “Lessons Learned” folder to plan drilling operations for subsequent wells, which he attached to the Declaration.

In the Declaration, Zupanick classified the dual wells that had been drilled up to that date into two groups -- the “Lower Wells” and the “Upper Wells.” To distinguish between the two groups, Zupanick included a Well Map that showed the location of each of the wells, and on the Well Map drew a vertical line which he designated as “A-A.” The wells that were below the “A-A” line were called the Lower Wells and they included all six of the wells drilled prior to the critical date - - wells DW-1 through DW-6 - - as well as wells DW-7, DW-9 and DW-12, each of which was drilled after the critical date. The Upper Wells were the wells drilled above the “A-A” line and all of these wells were drilled after the critical date.

Although CDX states that Zupanick provided the Declaration solely to provide the examiner with factual information from which he could reach his own conclusion regarding “experimentation,” it is clear from the Declaration that Zupanick was, at the very least, strongly implying that the Lower Wells were experimental and did not work for their intended purpose, while the Upper Wells were “successful” and did work for their intended purpose.

First, Zupanick advised the examiner of the “variations” in the drilling methods and configurations of the Lower Wells:

For the Lower Wells, the degasification processes and the lead times from degasification to mining varied, as well as rig type, drainage pattern and pattern spacing, over- and under-burdened drilling pressures, bit types, relative well spacing, pipe types, steering equipment, cavity intersection techniques, and cavity equipment.

In contrast, Zupanick informed the examiner that the “well configurations and drilling methods for degasification of the coal seams became largely fixed for the wells above line A-A (“Upper Wells”).”

Next, Zupanick stated - - or at least led the examiner to believe - - that the gas production from the Lower Wells was not on par with the gas production from the initial Upper Wells. This was important because Zupanick twice advised the examiner in the Declaration that gas production “was a primary indication of the success of the wells.” With respect to the Lower Wells, Zupanick described the gas production as follows:

Gas production, a primary indication of degasification success, from the Lower Wells also varied. On dual well DW-1, any gas that was produced from the coal seam was vented to the atmosphere. On dual well DW-2, very little gas was produced. On dual wells DW-3, DW-5 and DW-6, the articulated well did not intersect the cavity of the main vertical well bore, thereby requiring explosive and other additional drilling techniques to connect the articulated well bore with the vertical well bore. On dual well DW-4, gas production was approximately one-tenth of the expected gas production, and the gas produced was eventually

vented to the atmosphere. Dual wells DW-9 and DW-12 were drilled but not used. Gas production charts for several of the Lower Wells are attached as Exhibit C.

A fair reading of this paragraph is that Zupanick was advising the examiner that the gas production for the Lower Wells was not insufficient. Contrast that description with Zupanick's description of the gas production from the "successful" Upper Wells:

For the first produced Upper Well, 8G-2 (8FG-2), *successful degasification* was evidenced on or about February 1999 with *high gas recovery* and a good initial recovery curve. *Successful degasification* for 8G-3 (8FG-3) was similarly evidenced on or about February 1999 with *high gas recovery* and a good initial gas recovery curve.

(emphasis supplied).

Based upon our review of the Declaration, we believe that it is quite possible that the examiner interpreted the Declaration to mean that the gas production from the Lower Wells was lower than the gas production from Upper Wells. In fact, this was not true, as three of the six Lower Wells that were drilled before the critical date -- DW-3, DW-5 and DW-6, all had *higher* daily gas production rates than the supposedly "successful" Upper Wells 8G-2 and 8G-3. Thus, with respect to this potentially material fact, the Declaration was, at best, misleading.

In addition, neither the Declaration nor the exhibits attached thereto make any mention of the fact that USM sought to obtain, prior to the critical date, coalbed methane permits from the OOG for wells DW-4, DW-5 or DW-6 wells, or that the DW-5 permit was issued prior to the critical date. There is also no mention of the fact that, one month after the critical date, USM entered into a gas lease with CDX whereby CDX was permitted the right to use the invention for commercial purposes. This information, if provided, may also have been relevant to the examiner's analysis.

Upon consideration of the Declaration, and based solely upon the information provided therein, the examiner determined that the pre-critical date use of the invention was for “experimental purposes.” The examiner also deemed the claimed inventions of the patents-in-suit to be non-obvious in view of the prior art references submitted by CDX. As a result, the examiner allowed the parent patent ‘000 to issue on February 20, 2001. Thereafter, over the next several years, the PTO allowed each of the patents-in-suit to issue. As rehearsed, the district court has determined that each of the patents-in-suit relate to the ‘000 Patent.

H. The Accused Infringing Wells

Since the filing of the ‘000 Patent application in November 1998, the Consol Entities have drilled 35 wells that CDX contends infringe certain of the asserted claims of the patents-in-suit. In view of the district court’s claim construction ruling, and assuming that the patents-in-suit are valid and enforceable, the Consol Entities admit that 21 of their wells infringe certain claims of the patents-in-suit. On the other hand, the Consol Entities deny that eleven of the accused wells are infringing and have moved for summary judgment with respect to these wells. The Consol Entities contend that four of the wells do not infringe because they are “non-intersecting” wells, i.e., the articulated well bore did not openly connect with the vertical well bore and the communications between the wells was allegedly accomplished through fracturing. They argue that seven other wells that are single well sump systems, i.e., they do not employ dual wells to degasify the coal, are also non-infringing.

### **III. SUMMARY OF FINDINGS**

We are mindful of the heavy burden placed upon a party challenging the validity of an issued patent, and as a result we have viewed with considerable skepticism the invalidity arguments asserted by the Consol Entities, an admitted infringer of the patents-in-suit. We find,

however, that the Consol Entities have produced sufficient evidence to call into serious question the validity and enforceability of the patents-in-suit and, therefore, we conclude that there are genuine issues of material fact in dispute such that the validity and enforceability of the patents-in-suit cannot be determined at the summary judgment stage. We have also considered the remaining arguments of the parties and conclude that summary judgment is also inappropriate with respect to the issues of whether (i) CDX engaged in inequitable conduct; and (ii) the “coupled” and “single well sump” systems of the Consol Entities infringe the patents-in-suit.

### **III. LEGAL ANALYSIS**

#### **A. Standard of Review**

An issued patent is presumed valid. 35 U.S.C. §282; *Invitrogen Corp. v. Biocrest Mfg., L.P.*, 424 F.3d 1374, 1378 (Fed. Cir. 2005). Indeed, a party that is “otherwise an infringer who assails the validity of a patent fair upon its face bears a heavy burden of persuasion, and fails unless his evidence has more than a dubious preponderance.” *American Hoist & Derrick Co. v. Sowa & Sons, Inc.*, 725 F.2d 1350, 1359 (Fed. Cir. 1984)(quoting *Radio Corp. v. Radio Laboratories*, 293 U.S. 1, 8, 55 S.Ct. 928, 931 (1934)). Stated simply, a party seeking to overcome the presumptive validity of a patent must do so by clear and convincing evidence. *Id.*; *Metabolite Labs., Inc. v. Lab. Corp. of Am. Holdings*, 370 F.3d 1354, 1365 (Fed. Cir. 2004).

In addition, the attacking party must overcome the deference that is due the PTO examiner, who is presumed to have properly done his or her job in issuing the patent. *Am. Hoist & Derrick, Co.*, 725 F.2d at 1359. Notably, however, no deference is due the examiner’s decision with respect to new evidence that was not before the PTO and, therefore, was not considered by the examiner in issuing the patent. *Id.* at 1360. Nevertheless, and regardless of whether the PTO’s decision is entitled to deference, the burden of proof remains “constant and

never changes” and requires the attacking party to “convince the court of invalidity by clear evidence.” *Id.*

B. The “Public Use” and “On Sale” Bars of §102(b)

The Consol Entities contend that Zupanick’s and USM’s pre-critical date drilling activities at the Pinnacle Mine render the patents-in-suit invalid pursuant to the “public use” and “on sale” bars of 35 U.S.C. §102(b). Section 102(b) provides, in relevant part, that “a person shall be entitled to a patent unless . . . the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States . . . .”

To establish the “public use” bar, the Consol Entities must present clear and convincing evidence that the invention was, prior to the critical date, either: (1) accessible to the public or (2) commercially exploited. *Invitrogen Corp.*, 424 F.3d at 1380. To prove an “on sale” bar, the Consol Entities must establish that the invention was “the subject of a commercial offer for sale.” *Pfaff*, 525 U.S. at 67. To prevail on either the “public use” or “on sale” bar, the Console Entities must also demonstrate that the invention was “ready for patenting” prior to the critical date. This can be established in two ways: (1) the invention was “reduced to practice” before the critical date; or (2) the inventor had prepared, prior to the critical date, “drawings or other descriptions of the invention that were sufficiently specific to enable a person skilled in the art to practice the invention.” *Pfaff v. Wells Elecs., Inc.*, 525 U.S. 55, 67 (1998).

The policies underlying the “public use” and “on sale” bars include, among others, discouraging the removal of inventions from the public domain and favoring the prompt and widespread disclosure of inventions. *Baxter Int’l., Inc. v. Cobe Labs., Inc.*, 88 F.3d 1054, 1058

(Fed. Cir. 1996). Not all pre-critical date use of an invention will implicate the “public use” or “on sale” bars, however, because:

The law recognizes that an inventor may test his invention in public without incurring the public use bar. “Experimental use negates public use; when proved, it may show that particular acts, even if apparently public in a colloquial sense, do not constitute a public use within the meaning of section 102.”

*Netscape Communications Corp. v. Konrad*, 295 F.3d 1315, 1320 (Fed. Cir. 2002)(quoting *Baxter Int'l, Inc.*, 88 F.3d at 1059). Accordingly, “evidence that the public use or sale of a patented device was *primarily experimental* may negate an assertion of invalidity.” *Monon Corp. v. Stoughton Trailers, Inc.*, 239 F.3d 1253, 1258 (Fed. Cir. 2001)(emphasis supplied).

In *Pfaff, supra*, the Supreme Court restated the purposes underlying the experimental use doctrine:

[A]n inventor who seeks to perfect his discovery may conduct extensive testing without losing his right to obtain a patent for his invention - - even if such testing occurs in the public eye. The law has long recognized the distinction between inventions put to experimental use and products sold commercially. In 1878, we explained why patentability may turn on an inventor's use of his product.

“It is sometimes said that an inventor acquires an undue advantage over the public by delaying to take out a patent, inasmuch as he thereby preserves the monopoly to himself for a longer period than is allowed by the policy of the law; but this cannot be said with justice when the delay is occasioned by a *bona fide* effort to bring his invention to perfection, or to ascertain whether it will answer the purpose intended. His monopoly only continues for the allotted period, in any event; and it is the interest of the public, as well as himself, that the invention should be perfect and properly tested, before a patent is granted for it. Any attempt to use it for a profit, and not by way of experiment, for a longer period than two years before the application, would deprive the inventor of his right to a patent.” *Elizabeth v. American Nicholson Pavement Co.*, 97 U.S. 126, 137, 24 L.Ed. 1000.

The patent laws therefore seek both to protect the public's right to retain knowledge already in the public domain and the inventor's right to control whether and when he may patent his invention.

*Id.* at 64-65. See also, e.g., *Baxter, Int'l.*, 88 F.3d at 1060 ("The experimental use doctrine operates in the inventor's favor to allow the inventor to refine his invention or to assess its value relative to the time and expense of prosecuting a patent application.").

It is important to note that, while an inventor is given a period of time to test and perfect his invention, "once an inventor realizes that the invention as later claimed indeed works for its intended purpose, further 'experimentation' may constitute a barring public use." *New Railhead Mfg., LLC v. Vermeer Mfg. Co.*, 298 F.3d 1290, 1297 (Fed. Cir. 2002)(citing *RCA Corp. v. Data Gen. Corp.*, 887 F.2d 1056, 1061 (Fed. Cir. 1989)). Thus, "an invention can exist for the purposes of the statutory bar even though it may later be refined or improved." *Id.* (citing *Baxter Int'l, Inc.*, 88 F.3d at 1060; *Baker Oil Tools, Inc. v. Geo Vann, Inc.*, 828 F.2d 1558, 1563 (Fed. Cir. 1989)). Stated another way, once the "efficacy of the patented method" is proven, further modifications to the invention may constitute an invalidating public use. *New Railhead Mfg., LLC*, 298 F.3d at 1298.

In the case at bar, the Consol Entities contend that the "public use" bar applies because the invention was both "publicly accessible" and "commercially exploited." In response, CDX claims that any alleged public use was primarily experimental such that the "public use" bar is not applicable. As discussed below, we find that genuine issues of material fact exist to preclude summary judgment on this issue. Simply put, while we find that some of the earliest pre-critical date activities of USM and Zupanick related to the invention were experimental and did not constitute an invalidating public use, the evidence is ambiguous as to when the invention was "reduced to practice," such that experimentation became secondary to the commercial use of the

invention. The record establishes that the experimental use period began with the drilling of the first well, DW-1, and that it ended, if not earlier, by no later than December 1997, when USM entered into the commercial lease agreement with CDX whereby CDX was permitted to use and practice the invention for commercial purposes. What cannot be determined from the summary judgment record is whether the primarily experimental use of the invention ended before or after the critical date, November 20, 1997.

In arguing that the “public use” bar applies, the Consol Entities assert that the invention was “accessible to the public” prior to the critical date because Zupanick and USM failed to impose any express obligations of confidentiality or secrecy on the drilling companies that participated in the pre-critical date drilling activities. An invention will be deemed to have been put into public use when it is disclosed to the public “without any limitation or restriction, or injunction of secrecy.” *Invitrogen Corp.*, 424 F.3d at 1381 (quoting *Egbert v. Lippman*, 104 U.S. 333, 336 (1881)). However, while it is true that a third party’s use of an invention without an express confidentiality or secrecy obligation is evidence that the invention was in public use, it is not determinative of the issue; rather, it is “but one factor to be considered in assessing all of the evidence.” *Moleculon Research Corp. v. CBS, Inc.*, 793 F.2d 1261, 1266 (Fed. Cir. 1986)(citing *TP Labs., Inc. v. Professional Positioners, Inc.* 724 F.2d 965, 972 (Fed. Cir.), *cert. denied*, 469 U.S. 826 (1984)). Indeed, as the Court of Appeals has stated, “it is not public knowledge that precludes the inventor from obtaining a patent for it, but a public use or sale of it. . . . The use of an invention by the inventor himself, *or of any other person under his direction*, by way of experiment, in order to bring the invention to perfection, has never been regarded as such a use.” *TP Labs., Inc.* 724 F.2d at 970 (quoting *City of Elizabeth v. American Nicholson Pavement Co.*, 97 U.S. 126, 134-36 (1877)(emphasis supplied)).

In the case at bar, CDX has failed to produce any contracts or other documents that were in force in 1997 that clearly applied to the drilling companies and obligated them to confidentiality and secrecy. Although CDX argues that the drilling companies were under both an express contractual obligation, based upon a “master contract” between USM and its contractors, and an implied duty of confidentiality pursuant to industry custom, we find little evidence in the record to support either of these arguments. Indeed, and even assuming the existence of a duty of confidentiality, that duty was not communicated to or known by the representatives of the drilling companies who participated in the drilling activities, some of whom testified that they believed that they were free to disclose information regarding the wells to third parties -- and one who actually attempted to practice the invention at another location.

As to the second prong of the “public use” bar, the Consol Entities assert that the invention was “commercially exploited” prior to the critical date because USM used it as an integral part of its mining operations -- there is no dispute that USM used the invention to degasify coal seams and then mined through those seams prior to the critical date. Accordingly, the Consol Entities argue that the “public use” bar applies as a matter of law. We disagree.

Although we find evidence to support both the “public accessibility” and “commercial exploitation” prongs of the “public use” bar, we also find evidence that the pre-critical date use of the invention was primarily experimental. The test for whether the pre-critical date use of an invention renders a patent invalid involves an assessment of whether the circumstances surrounding the use establish that it was primarily for purposes of experimentation. Secrecy and the degree of commercial exploitation are two of the factors that a court may consider in determining whether a use was primarily experimental.<sup>7</sup>

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<sup>7</sup> Other factors include: (1) the necessity for public testing; (2) the amount of control over the experiment retained by the inventor; (3) the nature of the invention; (4) the length of the test period; (5) whether payment was made; (6) whether records of the experiment were kept; (7) who conducted the experiment; (8) whether the invention

It is not necessary for purposes of this opinion to examine each of the experimental use factors individually. Indeed, the Consol Entities do not seriously dispute, and we find, that most of the factors favor a finding of experimental use. This is not surprising, as the Consol Entities have, at least impliedly, acknowledged that some experimentation of the invention was necessary and that Zupanick was experimenting with his invention at least with respect to the drilling of the first well. The main thrust of the Consol Entities' argument, then, is that sometime after the drilling of the first well but before the critical date, the invention was "reduced to practice" such that further alleged experimentation constituted an invalidating use. As rehearsed, "experimental use, which means perfecting or completing an invention to the point of determining that it will work for its intended purpose, ends with an actual reduction to practice." *New Railhead Mfg., LLC*, 298 F.3d at 1297-98 (quoting *RCA Corp. v. Data Gen. Corp.*, 887 F.2d 1056, 1061 (Fed. Cir. 1989)). An inventor has reduced his invention to practice when: (1) he has constructed an embodiment or performed a process that met all of the limitations of the claims; and (2) he has determined that the invention will work for its intended purpose. *Taskett v. Dentlinger*, 344 F.3d 1337, 1340 (Fed. Cir. 2003).

We find that there are genuine issues of material fact in dispute as to whether the invention was "reduced to practice" prior to the critical date. There is no dispute that Zupanick constructed an embodiment of his invention that met all of the limitations of the claims prior to the critical date, but we simply cannot determine as a matter of law, based upon the facts of record, whether the invention had been "perfected" to the point that it worked for its intended purpose. Clearly the invention worked to an extent right from the outset - - DW -1 removed gas from the coal seam - - but did it, or did subsequent wells DW-2 through DW-6, work well

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reasonably requires evaluation under actual conditions of use; (9) whether testing was systematically performed; (10) whether the inventor continually monitored the invention during testing; and (11) the nature of the contacts made with potential customers. See, e.g., *Allan Engineering Corp.*, 299 F.3d at 1352-53.

enough for Zupanick to conclude, prior to the critical date, that the invention worked for its intended purpose?

The record on this issue is ambiguous. On the one hand, there is evidence from which a jury could conclude that Zupanick believed that the invention worked for its intended purpose prior to the critical date, including: (i) the May 21, 1997 memo from Zupanick stating that DW-1 was “seeing some fairly good gas flows” and that he “view[ed] this first well as an experiment to prove the concept;” (ii) the filing of applications for coalbed methane permits – evidence that Zupanick deemed the invention worked well enough to begin the commercialization of the wells and to sell the gas that they produced; (iii) Zupanick’s representation that the invention was necessary for the safety of the mining operations at the Pinnacle Mine; (iv) USM’s use of the dual wells as the exclusive method to degas the gateroads of the coal seams; and (v) the fact that three of the last four “experimental” wells had better gas production -- a factor that Zupanick himself deemed to be a “primary indication of the success of the wells” -- than wells that were drilled later and deemed “successful.”

On the other hand, there is also evidence that the invention did not work for its intended purpose prior to the critical date and that the pre-critical date activities were primarily experimental and for the purpose of “perfecting” the invention (and the methods utilized to create it) through systematic testing. Among other things, CDX has proffered evidence that: (i) the wells did not initially work for their intended purpose because they did not completely and adequately degas the coal seam. For example, Zupanick testified that in late August 1997 he determined that DW-1 had not adequately degassed the coal seam and that a vacuum had to be placed on the well to remove the remaining gas and make the coal safe for mining; (ii) Zupanick was engaged in “research” with respect to the first six wells and that he was attempting to perfect

his invention by revising and modifying certain of its aspects; (iii) the invention was not commercially exploited until USM entered into the gas lease with CDX in late December 1997, one month *after* the critical date; (iv) none of the gas produced by the first six wells was sold prior to the critical date - - and the only well of the first six from which any gas was ever sold was DW-6; and (v) Zupanick stated in January 1998, before he ever considered filing for a patent or knew of the requirements to establish the “experimental use” exception, that the first six wells constituted the “experimental phase” of the invention.<sup>8</sup> Based upon this evidence, we believe that a reasonable juror could conclude that the pre-critical date activities were primarily experimental and that the invention had not been “reduced to practice” before the critical date.

Because we find the evidence conflicting on the issue of whether use of the invention was “primarily experimental” throughout the pre-critical date period, and also on the issue of whether the invention was reduced to practice prior to the critical date, we cannot determine as a matter of law whether the “public use” bar applies to invalidate the patents-in-suit. Accordingly, summary judgment on this issue should be denied.

Similarly, we find that disputed issues of material fact preclude the issuance of summary judgment in favor of either party with respect to the application of the “on sale” bar. The Consol Entities contend that, because USM allegedly sold, prior to the critical date, a *product* of the invention, i.e., the coal that had been degassed by the invention, the “on sale” bar applies and invalidates the patents-in-suit.<sup>9</sup> We disagree. To the extent that CDX is able to establish that the pre-critical date use of the invention was primarily experimental, we find that any such coal sales

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<sup>8</sup> While it is true, as the Consol Entities’ argue, that an inventor’s subjective intent to experiment is immaterial if the objective evidence proves otherwise, *see, e.g.*, *LaBounty Mfg., Inc. v. U.S. Int’l Trade Comm’n*, 958 F.2d 1066, 1072 (Fed. Cir. 1992), where, as here, there is objective evidence to support a finding of experimentation, we believe that documented evidence of the inventor’s intent regarding his invention, made contemporaneously and before threatened or pending litigation, is certainly probative of the issues and may be considered by a fact finder.

<sup>9</sup> Under the applicable law, the “on sale” bar will apply if “the *product* of a method invention” is placed on sale more than one year before the filing of the patent application. *D.L. Auld Co. v. Chroma Graphics Corp.*, 714 F.2d 1144, 1148 (Fed. Cir. 1983)(emphasis supplied).

would have been incidental to the experimental nature of the use. As rehearsed, however, we cannot determine from the summary judgment record that the usage was primarily experimental throughout the pre-critical date period. Accordingly, summary judgment on this issue should also be denied.

C. The “Prior Printed Publication” Bar of §102

Pursuant to §102(b), a patent will be deemed invalid if the invention was “described in a printed publication in this or a foreign country . . . more than one year prior to the date of the application for patent in the United States.” 35 U.S.C. §102(b). The “prior printed publication” bar is intended to “prevent withdrawal by an inventor of that which was already in the possession of the public.” *Bruckelmyer v. Ground Heaters, Inc.*, 445 F.3d 1374, 1378 (Fed. Cir. 2006). To establish the bar, the Consol Entities must show by clear and convincing evidence that the printed publication: (1) was “publicly accessible,” prior to the critical date; in other words, that it was “disseminated or otherwise made available to the extent that persons interested and ordinarily skilled in the subject matter or art, exercising reasonable diligence, can locate it.” *Bruckelmyer v. Ground Heaters, Inc.*, 453 F.3d 1352, 1354 (Fed. Cir. 2006)(quoting *In re Wyer*, 655 F.2d 221 (CCPA 1981)), and (2) was “enabling” such that a person of ordinary skill in the art could practice the claimed invention without an undue amount of experimentation. See, e.g., *Helifix Ltd. v. Blok-Lok, Ltd.*, 208 F.3d 1339, 1347-48 (Fed. Cir. 2000).

The Consol Entities contend that the DW-5 coalbed methane well permit that was issued by the OOG on November 14, 2007, six days before the critical date, was a prior printed publication under §102(b) and therefore renders the patents-in-suit invalid. They assert that the DW-5 well permit was publicly accessible, as are all records of the OOG, and that it was also enabling, as it allegedly disclosed each and every element of most of the asserted claims and for those asserted claims that were not disclosed, said claims would be invalid as obvious based

upon what was well-known to one of ordinary skill in the art at the time of the invention. In response, CDX argues that the DW-5 well permit was not publicly available prior to the critical date and, in any event, that it was not enabling.

With respect to whether the DW-5 well permit was “publicly accessible” prior to the critical date, there is no dispute that: (i) the permit was issued on November 14, 1997 and was assigned API (American Petroleum Institute) number 047-109-01682-C, with the “C” designating that the permit was for a coalbed methane well; (ii) all permits issued by the OOG are, as a matter of law, available for inspection by the public; (iii) the information pertaining to the DW-5 well was entered into the OOG’s computer database by no later than November 14, 2007; (iv) any person who was searching for permits issued for coalbed methane wells could have located the DW-5 well permit prior to the critical date; and (v) the Oil and Gas Information Services (the “OGIS”), a trade group for the oil and gas industry that issues a weekly publication containing a list of permits recently issued by the OOG and the well plats for those permits, visited the OOG prior to the critical date and obtained a computer printed permit list, dated November 14, 1997, that showed the issuance of the DW-5 permit, as well as the well plat for the permit. Based upon these facts, the Consol Entities contend that the DW-5 well permit was “publicly accessible” prior to the critical date.

In response, CDX contends that the DW-5 well permit file folder was probably not actually filed in OOG’s filing system until on or after the critical date and suggests that the filing system was in such disarray at the time that, had a person requested the DW-5 well permit file folder prior to the critical date, the OOG would have been unable to locate and produce it. We find this argument to be without merit and there is no evidence in the record to support it.<sup>10</sup>

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<sup>10</sup> Although CDX’s expert, Michael Lewis, stated that the filing system “as it exists today is more organized and functional than as it was during 1997,” nowhere does he state or opine that the system was such that the OOG would have been unable to locate a well permit file folder that had not yet been entered into the filing system.

CDX further argues that the well permit had not been “indexed, cataloged, or shelved” in a meaningful way prior to the critical date such that a person of ordinary skill in the art would have been able to locate it using reasonable diligence. *See In re Cronyn*, 890 F.2d 1158, 1160-61 (Fed. Cir. 1989)(printed publication that was in possession of library, but had not been “indexed, cataloged or shelved” was not a “publicly accessible” document §102). Again, however, the record shows otherwise. The DW-5 permit file was specifically indexed as a coalbed methane gas well and there is no question that a person of ordinary skill in the art who was searching for coalbed methane gas well permits would have been able to locate the DW-5 permit file prior to the critical date using reasonable diligence. CDX contends that searching for “coalbed methane wells” would have been too narrow a search and that a person looking for references that teach about the invention would not limit their search to coalbed methane wells. While it may be true that a person of ordinary skill in the art would not have *limited* his or her search to coalbed methane wells, it is also true that such a person might very well have *included* such a search parameter when looking for references about the invention. This is because the invention, although defined broadly in the patents-in-suit to relate generally to “accessing a subterranean zone,” also clearly relates specifically to coalbed methane degasification, and it is therefore reasonable to expect that a person interested in the art would perform a search for coalbed methane wells. If he or she had done so, the DW-5 well permit file would have been readily accessible. Accordingly, we find as a matter of law that the DW-5 well permit file was “publicly accessible” prior to the critical date.

The Consol Entities also assert that the DW-5 well permit was “enabling” and, in support thereof, rely principally on a comparison between the diagram and plat submitted with the application and the corresponding representative figures found in the ‘000 Patent. It cannot be

disputed that those figures are very similar. CDX argues, however, that the DW-5 well permit was not enabling because it “fails to show numerous pieces of information that are necessary to practice the claimed invention without undue experimentation.” As support, CDX argues that Zupanick himself, “who was armed with more drilling and geological information than that taught by the DW-5 permit,” was unable to intersect the horizontal bore well to the vertical bore well on well DW-5. CDX also relies on the expert report of Dr. William W. Fleckenstein, an “expert in drilling,” who opined that the DW-5 well permit was not enabling and identified certain information that would allegedly be required in order for a person of ordinary skill in the art to practice the invention without undue experimentation. In view of Dr. Fleckenstein’s report, we find that there are material issues of fact in dispute that preclude summary judgment on this matter. Put simply, the record does not establish, by clear and convincing evidence, that the DW-5 well permit was enabling, and therefore, we cannot determine as a matter of law whether the “prior printed publication” bar of §102(b) is applicable.

D. The “Obviousness” Bar of §103

The parties’ cross-motions for summary judgment on the issue of obviousness should also be denied.

Initially, it should be noted that the PTO reviewed the patents-in-suit in the context of the prior art and found the invention to be nonobvious. That finding would typically be entitled to deference and would, in our view, entitle CDX to summary judgment on this issue but for the Supreme Court’s recent ruling in *KSR Int’l. Co. v. Teleflex, Inc.*, 127 S.Ct. 1727 (2007).

In *KSR*, the Supreme Court rejected the “rigid” application of the “teaching, suggestion, or motivation” test (the “TSM test”) of the Federal Circuit pursuant to which “a patent claim is only proved obvious if ‘some motivation or suggestion to combine the prior art teachings’ can be

found in the prior art, the nature of the problem, or the knowledge of the person having ordinary skill in the art.” *Id.* at 1734. Rather, the Supreme Court opined that an “expansive and flexible approach” to the question of obviousness must be applied, and stated that:

Neither the enactment of §103 nor the analysis in *Graham* disturbed this Court’s earlier instructions concerning the need for caution in granting a patent based on the combination of elements found in the prior art. For over a half century, the Court has held that a “patent for a combination which only unites old elements with no change in their respective functions . . . obviously withdraws what is already known into the field of its monopoly and diminishes the resources available to skillful men.” This is a principal reason for declining to allow patents for what is obvious. The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.

*Id.* at 1739.

In the case at bar, CDX has admitted that the invention claimed in the patents-in-suit consists of elements that have been known in the art for many years, and that the invention was a combination of these known elements. Indeed, CDX stated in its opening validity brief that its expert, Dr. Fleckenstein, had “provided an unrebutted opinion that all of the elements in the asserted claims were known in the art as of the 1970’s.” CDX relied upon Dr. Fleckenstein’s opinion in arguing that “[a]n invention consisting of elements known in the art for at least fifteen years, and likely more than twenty years, prior to their combination cannot, as a matter of law, be obvious.”<sup>11</sup>

The fact that the invention was a combination of known elements does not, however, necessarily render it obvious. Indeed, the Supreme Court stated in *KSR*:

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<sup>11</sup> After the Supreme Court issues its decision in *KSR*, CDX amended its Statement of Facts to retract its admission that the invention consisted of a combination of known elements. CDX stated that its initial admission resulted from an “inadvertent overstatement regarding the testimony by Dr. Fleckenstein” and that it had determined, prior to the decision in *KSR*, that it needed to correct the record. While this may be true, we will hold CDX to its admission and find that it is supported by the record.

. . . a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art. Although common sense directs one to look with care at a patent application that claims as innovation the combination of two known devices according to their established functions, it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does. This is so because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known.

*KSR*, 127 S.Ct. at 1741. Thus, the question before us is whether the combination that resulted in the claimed invention was “obvious to try.”

We find that the record is ambiguous as to whether the combination of known elements was “obvious to try.” The Consol Entities have relied heavily on the expert report of William Diamond who, along with David Oyler, drilled a “dual well” system in 1979 that consisted of a vertical well, an articulated well, and a multilateral drainage pattern. Unlike the present invention, however, the Oyler & Diamond system did not attempt to directly intersect the vertical and articulated wells. Diamond states in his expert report that he would have considered a direct connection if directional drilling had been more efficient at the time, but there are no references in Diamond’s extensive writings to indicate that he ever considered such an intersection or that he believed a direct connection would have been beneficial or effective. Moreover, neither Diamond nor anyone else sought to drill a dual well system with a direct intersection until over 15 years later, when Zupanick drilled his dual well systems at the Pinnacle Mine. These facts support CDX’s contention that Diamond’s statements may be the result of improper hindsight. In any event, we find that issues of fact are in dispute with respect to this issue because CDX has proffered contrary expert testimony stating that a direct intersection of

the two well bores would not have been obvious prior to Zupanick's invention. CDX has also provided evidence that the results from the invention were not expected or predictable.

Accordingly, although we are somewhat skeptical of the Consol Entities' "hindsight" arguments in support of a finding of "obviousness" and believe that the PTO examiner's determination that the invention was not obvious is entitled to considerable deference, we find that summary judgment is not appropriate on this issue in view of the Court's cautionary language in *KSR* against granting patent protection for inventions that merely combined previously known elements, as it appears Zupanick did here.<sup>12</sup>

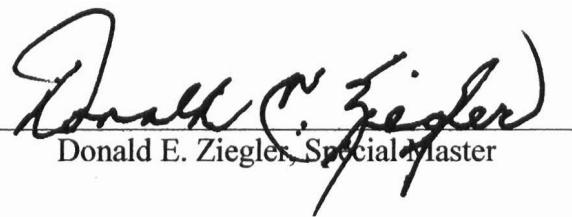
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<sup>12</sup> The remaining summary judgment motions of the parties should also be denied. Based upon our findings above, the remaining motions of CDX are not ripe for resolution, while we find disputed issues of fact exist with respect to the Console Entities' remaining arguments, including (i) that the patents-in-suit are invalid due to CDX's alleged inequitable conduct, and (ii) that certain of its "coupled" and "single well sump" systems do not infringe the patents-in-suit.

### **III. CONCLUSION**

For the reasons set forth above, we find that genuine issues of material fact are in dispute such that the validity and enforceability of the patents-in-suit cannot be determined at the summary judgment stage. Accordingly, we recommend that the district court deny all of the pending motions for summary judgment.

Dated: November 19, 2007



Donald E. Ziegler, Special Master